

REMARKS

In paragraph 1 of the Office Action it is indicated that claims 1-13 have been withdrawn as being drawn to a non-elected invention. Responsive, thereto, Applicant confirms the withdrawal of claims 1-13 and the election of claims 14-19 in this application.

In paragraph 2 of the Office Action the use of “Teflon” in the specification is noted, stating:

“The use of the trademark Teflon has been noted in this application, It should be capitalized wherever it appears and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner, which might adversely affect their validity as trademarks.”

Responsive hereto, Applicant has amended the specification in the paragraph beginning at page 9, line 3, to add the generic term “polymers” in association with the trademark Teflon, and Applicant has identified the owner of the Teflon registered trademark as E.I. Dupont De Nemours. Applicant therefore respectfully submits that this note in paragraph 3 has been responded to.

In paragraph 3 of the Office Action claims 15-19 are objected to because claim 15 appears to include the typographical error “A hard disk as described in claim 14”, however, claim 14 is drawn to a process for applying lubrication.

Responsive hereto, Applicant has amended claim 15 to cure this ground of objection.

In paragraphs 4, 5 and 6 of the Office Action claims 14-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 5028471 by Takuma, hereafter ‘471 in view of US Patent 3979531 by Heller, hereafter ‘531, stating:

“‘471 teaches of a method of lowering a plurality of disks into a lubrication bath and raising the plurality of disks from the bath (abstract, figures). ‘471 discloses providing a central mandrel with a plurality of disks spaced along length of the mandrel (Figures).

‘471 fails to disclose intercepting the surface waves within the bath prior to the waves reaching another of the disks.

However, '531 teaches of a method of stabilizing the surface of a fluidized bath to provide a uniform parting line (abstract). '531 discloses providing a screen or a plate member that is positioned at the surface of the coating material (Column 1, lines 42-45). '531 discloses the member will cover the entirety of the immersion bath with appropriately positioned opening to accommodate the articles to be coated as they are immersed and withdrawn (Column 1, lines 45-51). '531 discloses including opening in the wave intercepting member for each of the plurality of immersed articles, therefore the surface waves are intercepted before the waves reach another of the immersed disks (Figure 3). While the examiner notes '531 is directed to fluidized powder beds, it is the examiners position that fluidized powder is inherently a liquid because fluidized powder behaves like a liquid.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify '471 to use the bath screen to intercept the surface waves as suggested by '531 to provide a stable surface of the coating bath because '531 discloses a stabilizing the surface of an immersion bath with a screen on the surface is known in the art to provide a coating with a uniform parting line on immersed substrates and therefore would reasonably be expected to effectively provide a plurality of disk immersed within a liquid lubricant bath with uniform parting lines.

Claim 19: '531 discloses form the wave-intercepting member with a side surface formed of a porous material to stabilize the bath surface, i.e. to diminish the waves (Figure 2-3).

Claims 16 and 17: '471 in view of '531 fails to explicitly disclose including a wave-intercepting member with a plurality of projecting members and a central mandrel slot.

However, '531 discloses the member will cover the entirety of the immersion bath with appropriately positioned opening to accommodate the articles to be coated as they are immersed and withdrawn (Column 1, lines 45-51). '531 discloses a generally rectangular wave intercepting member (Figure 2-3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify '471 in view of '531 to position the opening in the wave intercepting member to accommodate the article to be coated as suggested by '531, including providing a plurality of projecting members and a central mandrel slot to accommodate each of the plurality of disks and the mandrel during the immersion process."

Responsive hereto, Applicant has amended independent claim 14 and dependent claim 15 to recite limitations that are not taught by nor obvious from the cited prior art, as is next discussed.

As indicated in Applicant's specification, Applicant's invention is directed towards creating a uniform thin lubrication film upon a disk surface, where this uniform thin film is primarily created by the smooth withdrawal of the disk from a lubricant bath. Any small surface waves which occur during the removal process, and to some extent even in the insertion process, can create areas on the disk having multiple layers of lubricant. Therefore, it is important in Applicant's invention that the surface waves be intercepted at all times during the disk removal step. Independent claim 14 has been amended in this regard.

As is further described in Applicant's specification, to accomplish the interception of the surface waves, a wave intercepting member is disposed upon the surface of the lubricant bath between adjacent disks. This wave intercepting member is disposed at the liquid bath surface at all times during the removal of the disks from the lubricant bath to intercept the surface waves; and it can also be important that the wave intercepting member be disposed on the surface of the lubricant bath during the lowering of the disks into the lubricant bath to intercept surface waves that may occur during the lowering of the disks. Dependent claim 15 has been amended to further describe this feature of Applicant's method. The rejection is next discussed.

Initially, Applicant asserts that there is no teaching or motivation for the combination of the '471 and '531 prior art to support the rejection. With regard to the '471 patent, it fails to disclose that there is any problem associated with thin film lubricant multilayers upon the surface of its process disk. Nor does it disclose that a problem may be associated with small surface waves within the lubricant bath, and particularly surface waves between the disks during a single coating operation.

The '531 patent, while discussing surface turbulence is actually directed to controlling and calming the surface of a bath between subsequent dippings of different sets of articles within the bath. It states in Col. 2, lines 47-56:

“As has been indicated above, in most instances the typical fluidized bed coating operation does not necessitate the accurate control of powder level within the bed. Further, in dipping operations in which only partial article immersion is anticipated, turbulent surface conditions may be created that will not restabilize prior to subsequent article immersion. Thus, where there is some criticality with respect to the coating parting line on the article bed top surface stabilization and control also becomes imperative.” Emphasis added

Thus neither '471 nor '531 discuss surface waves in a liquid bath, nor the problem they create between disks during a single coating process. There is therefore no motivation demonstrated in these patents for the combining of the teachings of these two patents.

Alternatively and additionally, with regard to the substantive rejection based upon the combined teachings of the cited prior art, '471 merely teaches the generalized utilization of a lubricant bath, and, as indicated in the office action, "fails to disclose intercepting the surface waves within the bath prior to the waves reaching another of the disks." The rejection relies on the teachings of the '531 patent in this regard. However, the '531 patent neither teaches nor renders obvious Applicant's invention as set forth in amended independent claim 14, as well as amended dependent claim 15. Specifically '531 fails to teach that the screen or plate member should be disposed at the surface of the bath at all times during the removing of the disks from the bath. Where the screen of '531 is disposed below the surface of the "liquid" (as depicted in Fig. 2), there is no wave intercepting device disposed upon the surface, and therefore there is no interception of any surface waves at this time. The '531 disclosure therefore fails to teach the significance of intercepting surface waves at all times during the removal of objects from the bath. Specifically, it is recited in '531 and depicted in Figs. 1 and 2:

Col. 1, lines 42-45:

"Accordingly, this invention provides for the inclusion of a screen or a similarly configured plate member that is positioned above but proximate the normal fluidized pulverulent material level in the bed." Emphasis added

Col. 1, lines 52-62:

"The proximity of the screen to the powder bed top surface is such that upon article immersion into the powder bed its elevational increase due to powder particle displacement will assure contact between the screen and powder. In fact, the level may be such that the screen becomes entirely immersed. However, in either case the contact with or immersion of the screen has the effect of minimizing surface turbulence and thus maintains a pulverulent material surface uniformity that will generate a coating parting line consistency within suitable tolerances." Emphasis added

Col. 2, lines 64 - col. 3, line 11:

"As is indicated by the dimension A the screen is elevated above the fluidized powder top surface by some small amount A. The dimensional extent of A may, of course, vary depending upon the size shape and number of articles that

are to be dipped simultaneously since in all instances it is imperative that upon article immersion the powder level must be elevated by the amount A which will at least assure contact with the screen 12. In fact, in some instances, it may be desirable to have the bed level due to immersion of articles therein increase substantially more than amount A so as to totally immerse the screen as is shown in FIG. 2. There it can be seen that the powder bed level is above the screen by some amount B which amount will be subject to experimental determination based upon the conditions of article immersion.” Emphasis added

Applicant therefore respectfully submits that the prior art references fail to teach or render obvious Applicant’s invention as set forth in amended independent claim 14 and dependent claim 15 that the surface waves must be intercepted at all times during the removing of the hard disks from the lubricant bath. Applicant therefore respectfully submits that amended independent claim 14 and dependent claim 15 recite subject matter that is not obvious from the cited prior art.

With regard to dependent claims 16, 17 and 19, Applicant submits that the features recited therein with regard to the shape and side surface characteristics of the wave intercepting member are neither taught by nor obvious from the cited prior art. In addition, Applicant further submits that dependent claims 16, 17 and 19 are allowable in that they depend , either directly or indirectly from an allowable base claim.

In paragraph 7 of the Office Action claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over ‘471 in view of ‘531 as applied to claim 16 above, and further in view of Abstract of Japanese Patent 2000000512 by Masashi et al, hereafter ‘512, stating:

“‘471 in view of ‘531 teach all the limitations of this claim, however, they fail to disclose forming the wave-intercepting member with irregular shaped side surfaces to diminish the surface waves.

However, ‘512 discloses providing an uneven surface aids in eliminating the turbulence in the surface of a liquid bath (Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify ‘471 in view of ‘531 to use the uneven side surfaces as suggested by ‘512 to provide a desirable stabilization of the surface of the bath because ‘512 discloses uneven surfaces are known in the art to eliminate turbulence on the surface of a bath and therefore would reasonably be expected to effectively stabilize the surface waves when immersing a plurality of disks in a liquid coating medium.”

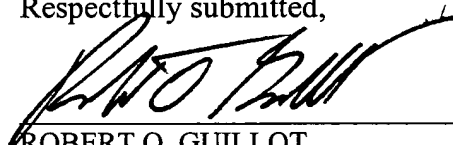
Responsive hereto Applicant notes that claim 18 is a dependent claim, and Applicant relies on its remarks set forth hereabove with regard to the allowability of claims from which claim 18 depend. Applicant therefore respectfully submits that claim 18 is allowable in that it depends from an allowable base claim.

Having responded to all of the paragraphs of the Office Action, and having amended the claims accordingly, Applicant respectfully submits that the Application is now in condition for allowance. Applicant therefore respectfully requests that a Notice of Allowance be forthcoming at the Examiner's earliest opportunity. Should the Examiner have any questions or comments with regard to this amendment, a telephonic conference at the number set forth below is respectfully requested.

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CERTIFICATE OF MAILING (37 CFR 1.8(a))

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited on May 26, 2005 with the U.S. Postal Service as first class mail in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
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